Application No.: 10/712,635
Amendment Dated: December 7, 2006
Reply to Office Action of: September 12, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1.-77 (Cancelled).

78. (Currently Amended) A laser device, comprising:

a laser light source having a semiconductor laser for radiating laser light ~~and an~~, a bulk type optical wavelength conversion element for generating a harmonic wave based on the laser light and a single mode fiber for conveying laser light from the semiconductor laser to the optical wavelength conversion element;

a modulator for modulating an output intensity of the harmonic wave; and

a deflector for changing a direction of the harmonic wave emitted from the laser light source,

wherein periodic domain inverted structures are formed in the optical wavelength conversion element,

wherein ~~the semiconductor laser is wavelength locked~~the single mode fiber is configured to prevent a variation in temperature of the optical wavelength conversion element caused by a heat generated from the semiconductor laser.

79. (Cancelled)

80. (Previously Presented) A laser device according to claim 78, wherein the laser light source further comprises:

a single mode fiber for conveying laser light from the semiconductor laser to the optical wavelength conversion element.

81. (Previously Presented) A laser device according to claim 78, wherein:

the semiconductor laser is a distributed feedback type semiconductor laser; and

the laser light source further comprises a semiconductor laser amplifier for amplifying the laser light from the distributed feedback type semiconductor laser.

82. (Withdrawn) A laser device, comprising:

an ultraviolet laser light source comprising an optical wavelength conversion element, in which periodic domain inverted structures are formed, and being configured so as to be capable of radiating modulated ultraviolet laser light; and

a deflector for changing a direction of the ultraviolet laser light,

wherein the deflector irradiates a screen with the ultraviolet laser light so as to generate red, green or blue light from a fluorescent substance being applied on the screen.

83. (Withdrawn) A laser device according to claim 82, wherein the laser light source further comprises:

a semiconductor laser; and

a single mode fiber for conveying laser light from the semiconductor laser to the optical wavelength conversion element, and

the optical wavelength conversion element generates a harmonic wave based on the conveyed laser light.

84. (Withdrawn) A laser device according to claim 82, wherein the laser light source further comprises:

a semiconductor laser;

a fiber for conveying laser light from the semiconductor laser; and

a solid state laser crystal for receiving laser light from the fiber and generating a fundamental wave,

wherein the optical wavelength conversion element generates a harmonic wave from the fundamental wave.

85. (Withdrawn) A laser device according to claim 82, wherein the laser light source further comprises:

a distributed feedback type semiconductor laser; and

a semiconductor laser amplifier for amplifying laser light from the distributed feedback type semiconductor laser.

86. (Withdrawn) A laser device according to claim 82, wherein:

the laser light source further comprises a semiconductor laser for emitting laser light;

an optical waveguide for guiding the laser light is further formed in the optical wavelength conversion element; and

a width and a thickness of the optical waveguide are each 40 μm or greater.

87. (Currently Amended) A laser device, comprising:

three laser light sources for generating red, green and blue laser light beams;

a modulator for changing an intensity of each of the laser light beams; and

a deflector for changing a direction of each of the laser light beams,

wherein at least one of the three laser light sources is formed of a semiconductor laser ~~and an~~a bulk type optical wavelength conversion element having periodic domain inverted structures and a single mode fiber for conveying laser light from the semiconductor laser to the optical wavelength conversion element,

wherein ~~the wavelength of laser light emitted from the semiconductor laser is locked~~the single mode fiber is configured to prevent a variation in temperature of the optical wavelength conversion element caused by a heat generated from the semiconductor laser.

88. (Cancelled)

89. (Currently Amended) A laser device according to claim 87, wherein ~~the laser light source further comprises a single mode fiber for conveying the laser light from the semiconductor laser to the optical wavelength conversion element, and~~

the optical wavelength conversion element receives the laser light from the fiber as a fundamental wave, and generates a harmonic wave based on the fundamental wave.

90. (Previously Presented) A laser device according to claim 87, wherein the semiconductor laser is a distributed feedback type laser, and the laser light source further comprises a semiconductor laser amplifier for amplifying laser light from the distributed feedback type semiconductor laser.

91. (Withdrawn) A laser device, comprising:

a laser light source comprising: a semiconductor laser for radiating laser light; a solid state laser crystal for receiving laser light radiated from the semiconductor laser and generating a fundamental wave; and an optical wavelength conversion element for generating a harmonic wave based on the fundamental wave;

a modulator for modulating an output intensity of the harmonic wave; and

a deflector for chaging a direction of the harmonic wave emitted from the laser light source,

wherein period domain inverted structures are formed in the optical wavelength conversion element, and

a wavelength of the fundamental wave incident on the optical wavelength conversion element is set to be constant.

92. (Withdrawn) A laser device according to claim 91, wherein the laser light source further comprises a fiber for conveying laser light from the semiconductor laser to the solid state laser crystal.

93. (Previously Presented) A laser device according to claim 78, wherein:

an optical waveguide is further formed in the optical wavelength conversion element; and

a width and a thickness of the optical waveguide are each 40 μm or greater.

94. (Withdrawn) A laser device according to claim 91, wherein:

an optical waveguide is further formed in the optical wavelength conversion element; and

a width and a thickness of the optical waveguide are each 40 μm or greater.

95. (Withdrawn) A laser device comprising:

three laser light sources for generating red, green and blue laser light beams;

a modulator for changing an intensity of each of the laser light beams; and

a deflector for changing a direction of each of the laser light beams;

wherein at least one of the three laser light sources is formed by a semiconductor laser, a solid state laser crystal for receiving laser light from the semiconductor laser and generating a fundamental wave, and an optical wavelength conversion element for generating a harmonic wave from the fundamental wave,

wherein periodic domain inverted structures are formed in the optical wavelength conversion element, and

a wavelength of the fundamental wave incident on the optical wavelength conversion element is set to be constant.

96. (Withdrawn) A laser device according to claim 95, wherein the laser light source comprises a fiber for conveying the laser light from the semiconductor laser to the solid state laser crystal.

97. (Previously Presented) A laser device according to claim 87, wherein an optical waveguide for guiding the laser light is further formed in the optical wavelength conversion element, and

a width and a thickness of the optical waveguide are each 40 μm or greater.

98. (Withdrawn) A laser device according to claim 95, wherein an optical waveguide for guiding the laser light is further formed in the optical wavelength conversion element, and

a width and a thickness of the optical waveguide are each 40 μm or greater.